Volume 195 1991

Table of contents

No. 1 1–288 issued on January 15, 1991
No. 2 289–584 issued on January 30, 1991
No. 3 585–878 issued on February 14, 1991

Acknowledgements to Referees 1–7

Corrections 287, 871

Information for Authors 873–878

Reviews

'Crosstalk': a pivotal role for protein kinase C in modulating relationships between signal transduction pathways
M. D. Houslay 9–27

Sensory transduction in eukaryotes — A comparison between *Dictyostelium* and vertebrate cells
P. J. M. Van Haastert, P. M. W. Janssens and C. Erneux 289–303

Regulation of the expression of the sex-specific isoforms of cytochrome *P*-450 in rat liver
V. Kobliakov, N. Popova and L. Rossi 585–591

Nucleic acids, protein synthesis and molecular genetics

NMR studies of bipyrimidine cyclobutane photodimers
T. M. G. Koning, J. J. G. van Soest and R. Kaptein 29–40

Activation of the double-stranded RNA-dependent eIF-2α kinase by cellular RNA from 3T3-F442A cells
J. Li and R. A. Petryshyn 41–48

Simian-virus-40 large-T-antigen-catalyzed DNA and RNA unwinding reactions
M. Scheffner, R. Knippers and H. Stahl 49–54

Evolutionary analysis of the nucleus-encoded subunits of mammalian cytochrome *c* oxidase
C. Saccone, G. Pesole and B. Kadenbach 151–156

Reverse transcriptase in archaebacteria — Purification and characterization of a primase–reverse-transcriptase complex from *Halobacterium halobium*
K. Ben-Mahrez, I. Sorokine, M. Nakayama and M. Kohiyama 157–162

Linker mutagenesis in the *lacZ* gene of *Escherichia coli* yields variants of active β-galactosidase
A. Breul, W. Kuchinke, B. von Wilcken-Bergmann and B. Müller-Hill 191–194

The major serum protein of *Drosophila* larvae, larval serum protein 1, is dispensable
D. B. Roberts, T. Jowett, J. Hughes, D. F. Smith and D. M. Glover 195–201

Specific valylation identity of turnip yellow mosaic virus RNA by yeast valyl-tRNA synthetase is directed by the anticodon in a kinetic rather than affinity-based discrimination
C. Florentz, T. W. Dreher, J. Rudinger and R. Giege 229–234

Molecular cloning and chromosomal localization of a human peripheral-type benzodiazepine receptor
J. Riond, M. G. Mattei, M. Kaghad, X. Dumont, J. C. Guillemot, G. Le Fur, D. Caput and P. Ferrara 305–311

Inhibition of protein synthesis by antagonists of calmodulin in Ehrlich ascites tumor cells
R. V. Kumar, R. Panniers, A. Wolfman and E. C. Henshaw 313–319

Gene for the ADP-ribosylatable elongation factor 2 from the extreme thermoacidophilic archaebacterium *Sulfolobus acidocaldarius* — Cloning, sequencing, comparative analysis
J. Schröder and F. Klink 321–327

Structures and characterization of sex-specific mouse cytochrome *P*-450 genes as members within a large family — Duplication boundary and evolution
M. Lakso, R. Masaki, M. Noshiro and M. Negishi 477–486

Multiple α-tubulin isoforms in cilia and cytoskeleton of *Tetrahymena pyriformis* generated by post-translational modifications — Studies during reciliation
D. Penque, L. Galego and C. Rodrigues-Pousada 487–494

Structures of regulatory regions in the human cytochrome *P*-450$_{scc}$ (desmolase) gene
H. Inoue, N. Watanabe, Y. Higashi and Y. Fujii-Kuriyama 563–569

Highly conserved structure of proliferating cell nuclear antigen (DNA polymerase δ auxiliary protein) gene in plants
I. Suzuka, S. Hata, M. Matsuoka, S. Kosugi and J. Hashimoto 571–575

Genomic organization of the human procollagen α1(II) collagen gene
M.-C. Huang, J. M. Seyer, J. P. Thompson, D. G. Spinella, K. S. E. Cheah and A. H. Kang 593–600

Secondary structure of the 5' external transcribed spacer of vertebrate pre-rRNA — Presence of phylogenetically conserved features
B. Michot and J.-P. Bachellerie 601–609

ADP is a substrate for the AAUAAA-directed poly(A) addition reaction catalyzed by HeLa cell nuclear extracts
J. Lakota and B. D. Nelson 685–689

The substrate specificity of protein kinases which phosphorylate the α subunit of eukaryotic initiation factor 2
C. G. Proud, D. R. Colthurst, S. Ferrari and L. A. Pinna 771–779

An additional promoter functions in the human aldolase A gene, but not in rat
T. Mukai, Y. Arai, H. Yatsuki, K. Joh and K. Hori 781–787

Protein chemistry and structure

The amphiphilic α-helix concept – Consequences on the structure of staphylococcal δ-toxin in solution and bound to lipids
E. Thiaudière, O. Siffert, J.-C. Talbot, J. Bolard, J. E. Alouf and J. Dufourcq 203–213

Construction and characterization of a functional chimeric murine–human antibody directed against human fibrin fragment-D dimer
F. Bulens, A.-M. Vandamme, H. Bernar, L. Nelles, R. H. Lijnen and D. Collen 235–242

Amino acid and cDNA sequences of a methionine-rich 2S protein from sunflower seed (*Helianthus annuus* L.)
A. A. Kortt, J. B. Caldwell, G. G. Lilley and T. J. Higgins 329–334

Conformational change of turkey-gizzard caldesmon induced by specific chemical modification with carbodiimide
F. Martin, M.-C. Harricane, E. Audemard, F. Pons and D. Mornet 335–342

An unusual class I (Schiff base) fructose-1,6-bisphosphate aldolase from the halophilic archaebacterium *Haloarcula vallismortis*
G. Krishnan and W. Altekar 343–350

Isolation and structure elucidation of a novel adipokinetic hormone (Lom-AKH-III) from the glandular lobes of the corpus cardiacum of the migratory locust, *Locusta migratoria*
R. C. H. M. Oudejans, F. P. Kooiman, W. Heerma, C. Versluis, A. J. Slotboom and A. M. T. Beenakkers 351–359

cDNA sequence and deduced amino acid sequence of the precursor of the 37-kDa inner envelope membrane polypeptide from spinach chloroplasts – Its transit peptide contains an amphiphilic α-helix as the only detectable structural element
U. Dreses-Werringloer, K. Fischer, E. Wachter, T. A. Link and U.-I. Flügge 361–368

Determination of the covalent structure of an N- and C-terminally blocked glycoprotein from endocuticle of *Locusta migratoria* – Combined use of plasma desorption mass spectrometry and Edman degradation to study post-translationally modified proteins
G. Talbo, P. Højrup, H. Rahbek-Nielsen, S. O. Andersen and P. Roepstorff 495–504

Cuttlefish sperm protamines – 1. Amino acid sequences of two distinct variants
A. Martin-Ponthieu, D. Wouters-Tyrou, D. Bélaiche, P. Sautière, P. Schindler and A. Van Dorsselaer 611–619

Cuttlefish sperm protamines – 2. Mass spectrometry of protamines and related peptides
P. Schindler, F. Bitsch, K. Klarskov, P. Roepstorff, G. Briand, D. Wouters-Tyrou, P. Sautière and A. Van Dorsselaer 621–629

Two structural domains as a general fold of the toxic fragment of the *Bacillus thuringiensis* δ-endotoxins
D. Convents, M. Cherlet, J. Van Damme, I. Lasters and M. Lauwereys 631–635

Thrombin cleavage analysis of a novel antihaemophilic factor variant, factor VIII Δ II
S. Krishnan, H. V. J. Kolbe, P. Lepage, T. Faure, R. Sauerwald, H. de la Salle, C. Muller, N. Bihoreau, P. Paolantonacci, C. Roitsch, P. Meulien and A. Pavirani 637–644

Tryptophan phosphorescence of G-actin and F-actin
G. B. Strambini and S. S. Lehrer 645–651

Efficient renaturation and fibrinolytic properties of prourokinase and a deletion mutant expressed in *Escherichia coli* as inclusion bodies
G. Orsini, A. Brandazza, P. Sarmientos, A. Molinari, J. Lansen and G. Cauet 691–697

Blocking of the receptor-mediated invasion of erythrocytes by *Plasmodium knowlesi* malaria with sulfated polysaccharides and glycosaminoglycans
J. P. Dalton, D. Hudson, J. H. Adams and L. H. Miller 789–794

Characterization of the cell-cycle-regulated protein calcyclin from Ehrlich ascites tumor cells – Identification of two binding proteins obtained by Ca^{2+}-dependent affinity chromatography
A. Filipek, V. Gerke, K. Weber and J. Kuźnicki 795–800

Characterization of the cellular binding domain and the effects of monoclonal antibodies and thrombin inhibitors on the binding and internalization of the antithrombin-III–thrombin complex by cultured cells
S. Knoller and N. Savion 801–806

Three-dimensional correlated NMR study of *Megasphaera elsdenii* flavodoxin in the oxidized state
S. S. Wijmenga and C. P. M. Mierlo 807–822

Enzymology

Thymidine kinase from *Tetrahymena thermophila* – Purification and immunological analysis
P. W. Kinyanjui and R. E. Pearlman 55– 63

Purification of a cysteine endopeptidase which is secreted with bioactive peptides from the epidermal glands of *Xenopus laevis*
N. J. Darby, D. B. Lackey and D. G. Smyth 65– 70

Submicromolar manganese dependence of Golgi vesicular galactosyltransferase (lactose synthetase)
N. J. Kuhn, S. Ward and W. S. Leong 243–250

Mechanism of the inhibition of α-thrombin by hirudin-derived fragments hirudin(1–47) and hirudin(45–65)
T. Schmitz, M. Rothe and J. Dodt 251–256

Purification and properties of an aryl-alcohol dehydrogenase from the white-rot fungus *Phanerochaete chrysosporium*
A. Muheim, R. Waldner, D. Sanglard, J. Reiser, H. E. Schoemaker and M. S. A. Leisola 369–375

Kinetic characterization of the enzymatic activity of the eEF-2-specific Ca^{2+}- and calmodulin-dependent proteinkinase III purified from rabbit reticulocytes
A. Nilsson, U. Carlberg and O. Nygård 377–383

Paramagnetic centers and acetyl-coenzyme A/CO exchange activity of carbon monoxide dehydrogenase from *Methanothrix soehngenii*
M. S. M. Jetten, W. R. Hagen, A. J. Pierik, A. J. M. Stams and A. J. B. Zehnder 385–391

Fine tuning of the catalytic properties of human carbonic anhydrase II — Effects of varying active-site residue 200
G. Behravan, B.-H. Jonsson and S. Lindskog 393–396

Demonstration of a molybdenum- and vanadium-independent nitrogenase in a *nifHDK*-deletion mutant of *Rhodobacter capsulatus*
K. Schneider, A. Müller, U. Schramm and W. Klipp 653–661

Why do many Michaelian enzymes exhibit an equilibrium constant close to unity for the interconversion of enzyme-bound substrate and product?
G. Pettersson 663–670

Kinetics of the conformational transition of the spinach chloroplast fructose-1,6-bisphosphatase induced by fructose 2,6-bisphosphate
J.-M. Soulié, M. Rivière, P. Baldet and J. Ricard 671–678

Synthesis of myristoyl-carba(dethia)-coenzyme A and *S*-(3-oxohexadecyl)-coenzyme A, two potent inhibitors of myristoyl-CoA:protein *N*-myristoyltransferase
A. P. Wagner and J. Rétey 699–705

Dependence of lysozyme-catalysed solubilization of *Proteus mirabilis* peptidoglycan on the extent of *O*-acetylation
C. Dupont and A. J. Clarke 763–769

An acryl-carrier-protein—thioesterase domain from the 6-deoxyerythronolide B synthase of *Saccharopolyspora erythraea* — High-level production, purification and characterisation in *Escherichia coli*
P. Caffrey, B. Green, L. C. Packman, B. J. Rawlings, J. Staunton and P. F. Leadlay 823–830

Transcription of synthetic DNA containing sequences with dyad symmetry by wheat-germ RNA polymerase II — Increased rates of product release in single-step addition reactions
D. Job, C. Job, L. Mercoyrol and D. Shire 831–839

Lys631 residue in the active site of the bacteriophage T7 RNA polymerase — Affinity labeling and site-directed mutagenesis
T. G. Maksimova, A. A. Mustayev, E. F. Zaychikov, D. L. Lyakhov, V. L. Tunitskaya, Kh. Akbarov, S. V. Luchin, V. O. Rechinsky, B. K. Chernov and S. N. Kochetkov 841–847

Investigations on microbial sulfur respiration — Isolation, purification, and characterization of cellular components from Spirillum 5175
A. Zöphel, M. C. Kennedy, H. Beinert and P. M. H. Kroneck 849–856

Carbohydrates, lipids and other natural products

NMR investigations of the N-linked oligosaccharides at individual glycosylation sites of human lutropin
G. Weisshaar, J. Hiyama, A. G. C. Renwick and M. Nimtz 257–268

Rapid characterization of asparagine-linked oligosaccharides isolated from glycoproteins using a carbohydrate analyzer
K. R. Anumula and P. B. Taylor 269–280

Carbohydrate microheterogeneity of rat serotransferrin — Determination of glycan primary structures and characterization of a new type of trisialylated diantennary glycan
G. Spik, B. Coddeville, G. Strecker, J. Montreuil, E. Regoeczi, P. A. Chindemi and J. R. Rudolph 397–405

Covalent binding of dolichyl phosphate to proteins in rat liver
A. Thelin, P. Löw, T. Chojnacki and G. Dallner 755–761

Physical and inorganic biochemistry

$S = 9/2$ EPR signals are evidence against coupling between the siroheme and the Fe/S cluster prosthetic groups in *Desulfovibrio vulgaris* (Hildenborough) dissimilatory sulfite reductase
A. J. Pierik and W. R. Hagen 505–516

Membranes and bioenergetics

Mechanism and energetics of a citrate-transport system of *Klebsiella pneumoniae*
M. E. van der Rest, T. Abee, D. Molenaar and W. N. Konings 71– 77

On the mechanism of sodium ion translocation by methylmalonyl-CoA decarboxylase from *Veillonella alcalescens*
W. Hilpert and P. Dimroth 79– 86

Analysis of inhibitor binding to the mitochondrial cytochrome *c* reductase by fluorescence quench titration — Evidence for a 'catalytic switch' at the Q_o center
U. Brandt and G. von Jagow 163–170

Phosphate binding and ATP-binding sites coexist in Na^+/K^+-transporting ATPase, as demonstrated by the inactivating $MgPO_4$ complex analogue $Co(NH_3)_4PO_4$
E. Buxbaum and W. Schoner 407–419

Secondary structure and orientation of the amphipathic peptide GALA in lipid structures — An infrared-spectroscopic approach
E. Goormaghtigh, J. De Meutter, F. Szoka, V. Cabiaux, R. A. Parente and J.-M. Ruysschaert 421–429

Regulation of the proton/electron stoichiometry of mitochondrial ubiquinol:cytochrome *c* reductase by the membrane potential
G. Bechmann and H. Weiss 431–438

Purification, biosynthesis and cellular localization of a major 125-kDa glycophosphatidylinositol-anchored membrane glycoprotein of *Saccharomyces cerevisiae*
C. Fankhauser and A. Conzelmann 439–448

The *Bacillus subtilis* cytochrome-*c* oxidase – Variations on a conserved protein theme
M. Saraste, T. Metso, T. Nakari, T. Jalli, M. Lauraeus and J. van der Oost 517–525

Structural and functional characteristics of polypeptide subunits of the bovine heart ubiquinol–cytochrome-*c* reductase complex
T. Cocco, M. Lorusso, A.-M. Sardanelli, M. Minuto, S. Ronchi, G. Tedeschi and S. Papa 731–734

Isolation and inactivation of the nuclear gene encoding the rotenone-insensitive internal NADH:ubiquinone oxidoreductase of mitochondria from *Saccharomyces cerevisiae*
C. A. M. Marres, S. de Vries and L. A. Grivell 857–862

Metabolism and metabolic regulation

Phosphorus-31 nuclear magnetic resonance of C6 glioma cells and rat astrocytes – Evidence for a modification of the longitudinal relaxation time of ATP and P_i during glucose starvation
I. Pianet, M. Merle, J. Labouesse and P. Canioni 87–95

Metabolism of [2-^{13}C]succinate in renal cells determined by ^{13}C NMR
A. W. H. Jans and R. Willem 97–101

Failure of channelling to maintain low concentrations of metabolic intermediates
A. Cornish-Bowden 103–108

Irreversible transitions in the 6-phosphofructokinase/fructose 1,6-bisphosphatase cycle
W. Schellenberger and J.-F. Hervagault 109–113

Substrate specificity of α2→3-sialyltransferases in ganglioside biosynthesis of rat liver golgi
H. Iber, G. van Echten and K. Sandhoff 115–120

Hepatocyte heterogeneity in uptake and metabolism of malate and related dicarboxylates in perfused rat liver
B. Stoll and D. Häussinger 121–129

The human dioxin-inducible NAD(P)H:quinone oxidoreductase cDNA-encoded protein expressed in COS-1 cells is identical to diaphorase 4
P. M. Shaw, A. Reiss, M. Adesnik, D. W. Nebert, J. Schembri and A. K. Jaiswal 171–176

Control of hepatic mitochondrial 3-hydroxy-3-methylglutaryl-CoA synthase during the foetal/neonatal transition, suckling and weaning in the rat
P. A. Quant, D. Robin, P. Robin, P. Ferre, M. D. Brand and J. Girard 449–454

Oxygen tension does not affect urea synthesis in perifused rat hepatocytes
L. Boon and A. J. Meijer 455–457

Signal transduction and molecular neurobiology

Isolation of schistosomin, a neuropeptide which antagonizes gonadotropic hormones in a freshwater snail
P. L. Hordijk, R. H. M. Ebberink, M. de Jong-Brink and J. Joosse 131–136

Monoclonal antibodies against various forms of the adenylyl cyclase catalytic subunit and associated proteins
S. Mollner, R. Simmoteit, D. Palm and T. Pfeuffer 281–286

A clonal rat pancreatic δ cell line (Rin14B) expresses a high number of galanin receptors negatively coupled to a pertussis-toxin-sensitive cAMP-production pathway
B. Amiranoff, A. M. Lorinet and M. Laburthe 459–463

Interaction of guanine-nucleotide-binding regulatory proteins with chemotactic peptide receptors in differentiated human leukemic HL-60 cells
M. Tohkin, N. Morishima, T. Iiri, K. Takahashi, M. Ui and T. Katada 527–533

Structural requirements for the binding of the pituitary adenylate-cyclase-activating peptide to receptors and adenylate-cyclase activation in pancreatic and neuronal membranes
P. Gourlet, M.-C. Woussen-Colle, P. Robberecht, P. de Neef, A. Cauvin, M.-C. Vandermeers-Piret, A. Vandermeers and J. Christophe 535–541

Effects of phorbol ester and cholecystokinin on the intracellular distribution of protein kinase C in rabbit pancreatic acini
A. G. H. Ederveen, S. E. van Emst-De Vries, J. J. H. H. M. de Pont and P. H. G. M. Willems 679–683

Linking phospholipase A_2 to phospholipid turnover and prostaglandin synthesis in mast cell granules
S. P. Chock, S. G. Rhee, L. C. Tang and E. A. Schmauder-Chock 707–713

Activation of a pertussis-toxin-sensitive guanine-nucleotide-binding regulatory protein during desensitization of *Dictyostelium discoideum* cells to chemotactic signals
B. E. Snaar-Jagalska, S. Van Es, F. Kesbeke and P. J. M. Van Haastert 715–721

Phosphatidylinositol-specific phospholipase C induces biosynthesis of acetylcholinesterase via diacylglycerol in *Schistosoma mansonii*
B. Espinoza, I. Silman, R. Arnon and R. Tarrab-Hazdai 863–870

Molecular cell biology

Fe_2^{3+}-transferrin and Fe_2^{3+}-asialotransferrin deliver iron to hepatocytes by an identical mechanism
R. J. Sharma and D. A. W. Grant 137–143

The vacuolar protein-targeting signal of yeast carboxypeptidase is functional in oocytes from *Xenopus laevis*
T. Roitsch and L. Lehle 145–150

Highly purified pea chloroplast RNA polymerase transcribes both rRNA and mRNA genes
V. K. Rajasekhar, E. Sun, R. Meeker, B.-W. Wu and K. K. Tewari 215–228

Molecular cell biology

Tumour-necrosis-factor-mediated cytotoxicity is correlated with phospholipase-A_2 activity, but not with arachidonic acid release *per se*
P. Suffys, R. Beyaert, D. De Valck, B. Vanhaesebroeck, F. Van Roy and W. Fiers 465–475

Caldesmon-induced polymerization of actin from profilactin
B. Gałązkiewicz, F. Buss, B. M. Jockusch and R. Dąbrowska 543–547

Tissue-specific and time-coordinated hormone regulation of plasminogen-activator-inhibitor type I and tissue-type plasminogen activator in the rat ovary during gonadotropin-induced ovulation
Y.-X. Liu, X.-R. Peng and T. Ny 549–555

Requirement of down-regulation of NAD^+ ADP-ribosyltransferase for the interferon-γ-induced activation process of murine macrophage tumor cells
T. Taniguchi, S. Takahashi, H. Yamamoto, S. Fujimoto and H. Okoyama 557–562

Myosin heavy-chain-based isomyosins in developing, adult fast-twitch and slow-twitch muscles
A. Termin and D. Pette 577–584

Identification of a novel nuclear protein synthesized in growth-arrested human hepatoblastoma HepG2 cells
G. Donadel, C. Garzelli, R. Frank and F. Gabrielli 723–729

A tetranectin-related protein is produced and deposited in extracellular matrix by human embryonal fibroblasts
I. Clemmensen, L. R. Lund, L. Christensen and P. A. Andreasen 735–741

Developmental biochemistry and immunology

The human leukocyte-adhesion ligand, intercellular-adhesion molecule 2 – Expression and characterization of the protein
C. G. Gahmberg, P. Nortamo, D. Zimmermann and E. Rouslahti 177–182

Endopeptidase variations among different life-cycle stages of African trypanosomes
Z. R. Mbawa, I. D. Gumm, W. R. Fish and J. D. Lonsdale-Eccles 183–190

Comparison of myosin isoenzymes present in skeletal and cardiac muscles of the Arctic charr *Salvelinus alpinus* (L.) – Sequential expression of different myosin heavy chains during development of the fast white skeletal muscle
I. Martinez, J. S. Christiansen, R. Ofstad and R. L. Olsen 743–753

Indexed in *Current Contents*